



A RARE CASE OF TUBERCULOUS OSTEOMYELITIS OF MANDIBLE - UNLEASHING THE OCCULT MICROBE

Maxillofacial Surgery

Dr. L. Gaayathri*	Postgraduate Trainee, Department of Oral And Maxillofacial Surgery CSI College of Dental Sciences and Research. *Corresponding Author
Dr. K. Thanvir Mohammedniazi	Professor and Head of the Department Department of Oral And Maxillofacial Surgery CSI College of Dental Sciences And Research
Dr. G. Ulaganathan	Professor, Department of Oral and Maxillofacial Surgery, CSI College of Dental Sciences and Research
Dr. S. Kalaiselvan	Reader, Department of Oral and Maxillofacial Surgery CSI College of Dental Sciences and Research
Dr. T. Jones raja devathambi	Reader, Department of Oral Medicine and Radiology. CSI College of Dental Sciences and Research

ABSTRACT

Osteomyelitis of the mandible is typically linked to a variety of etiological factors such as trauma, systemic infections and compromised immunity. Tuberculous osteomyelitis in faciomaxillary region, is a rare and an infrequently diagnosed variant caused by *Mycobacterium tuberculosis* which is predominantly observed in individuals with weakened immune systems due to chronic illness, malnutrition or HIV infection. This case report highlights the case of a 28-year-old male who presented with persistent swelling and pain localized to the right side of the face without any associated systemic illness. Initially underwent treatment for a soft tissue infection and further diagnostic evaluation revealed the presence of *Mycobacterium tuberculosis*. This case underscores the diagnostic challenges associated with this uncommon condition presenting in maxillofacial region and emphasizes the importance of early and precise detection to formulate an effective treatment strategy.

KEYWORDS

Mycobacterium Tuberculosis, Trauma, Compromised Immunity, HIV

INTRODUCTION

Extrapulmonary Tuberculosis affecting facial bones is a rare presentation, representing less than 2% of the other skeleton.[1] As estimated in 2021, 10.6 million people were infected with Tuberculosis (TB) worldwide.[2] Tuberculous osteomyelitis is uncommon and often, the diagnosis was delayed because of nonspecific clinical presentation due to the absence of pathognomonic signs having the mainstay of treatment as antitubercular multi drug therapy combined with or without surgical intervention.[3] In this case report we present the case of a 28-year-old male patient who was managed for persistent facial swelling involving the mandible with osteolytic degeneration following tubercular infection.

Case Description

A 28-year old male reported to the OMFS OPD, CSICDSR, Madurai with the chief complaints of pain and swelling over the right side of the face along with difficulty in opening the mouth for the past 2 months. Patient's history revealed that the swelling was sudden in onset and gradually increasing in size to attain the present size. (Figure 1) Despite undergoing medical management with multiple antibiotic therapy, the conditions showed only a minimal response. He also had a history of chronic suppurative otomastoiditis and acne scar management. Family history revealed that his father was a known case of pulmonary tuberculosis and was under ATT (Antitubercular therapy) regimen.

Comprehensive physical and systemic evaluation yielded no notable diagnostic insights. A localized examination revealed diffuse swelling in the right body and ramus region of the mandible, measuring approximately 4.5 x 4.5 cm with shiny, erythematous appearance and residual scars from a prior skin infection. Upon palpation, the swelling was firm, afebrile and tender with no evidence of bleeding or discharging sinus tracts. Additionally, there was considerable involvement of the ipsilateral submandibular and upper cervical lymph nodes, those were soft, tender and not adherent to the underlying structures. Intra oral findings revealed the presence of a root canal treated tooth in relation to 46 which was asymptomatic. Based on the above clinical findings the provisional diagnosis was made as buccal space infection with the differential diagnosis of tuberculous osteomyelitis of mandible.

The routine hematological findings included WBC-7600 cells/mm³ and ESR-20mm at the end of one hour. The Mantoux test yielded a

strongly positive result with an induration diameter of 18 mm. Tissue samples from the areas of concern tested positive for *Mycobacterium tuberculosis* bacterial DNA. Conversely, other viral markers was found to be negative.

Computed Tomography (Figure 2) and the 3D reconstruction of CT revealed the presence of multifocal osteolytic areas with benign solid periosteal reaction evident over the right body and ramus of mandible and a diffuse periosseous oedema suggestive of chronic osteomyelitis of right hemi mandible and inflammatory myositis of right masseter muscle respectively with reactive right intraparotid and upper cervical subcentimetric lymphnodes. (Figure 3)

On correlation of clinical, radiological and pathological findings a definitive diagnosis of Tuberculous osteomyelitis was established. The patient was subsequently started with ATT regimen following physician advice. Patient was recalled for a periodic review on a regular basis at an interval of 15 and 30 days. Upon six-month follow up review, CT findings revealed the formation of new bone in the previously affected osteolytic regions of mandible with no signs of recurrence or extension to surrounding areas along with the significant reduction of soft tissue swelling over the face, indicating notable remission with a positive response to the treatment.

DISCUSSION

TB is a chronic granulomatous condition that can impact multiple systems of the body. Bony and spinal involvement occurs in 1 to 3% and 50% of patients with extrapulmonary tuberculosis respectively.[4,5] Tuberculous osteomyelitis of mandible is regarded as a rare condition that affects both genders, although it is more prevalent in males. The occurrence of tuberculous infection in the mandible is notably uncommon due to its lower cancellous bone content, when occurs it involves often the alveolar and angle region.[6] The infection can reach the mandible through direct transmission from infected sputum or contaminated milk, regional spread from a soft tissue lesion, or hematogenous dissemination.

Differential diagnosis includes common lytic lesions in the mandible, particularly in the angle-ramus region, such as ameloblastoma, non-bacterial osteomyelitis, multiple myeloma, fibrous dysplasia, osteosarcoma, and metastatic bone disease. Radiologically, there is no characteristic appearance of TB, however Mandibular TB starts as an area of rarefaction and trabecular blurring leading to the erosion of

cortical bone which is replaced by soft granulation tissue with subsequent sub-periosteal abscess formation presenting as a visible painful swelling. Pathological fractures or sequestration have also been reported.

ATT remains as the mainstay of focus in case of minimally destructive lesions. The Medical management includes rifampicin, isoniazid, pyrazinamide and ethambutol initially as an intensive phase regimen followed by rifampicin, isoniazid and ethambutol as continuation phase for a total period of 6-18 months with clinical and biological monitoring.

Medical management plays a key role in early stage cases with minimal bone involvement. In this patient, we could observe that ATT regimen along with supportive therapy was sufficient to eradicate the infection and foster healing. Surgical intervention is warranted in instances where the infection has caused significant bone destruction and soft tissue involvement, posing the risk of pathological fractures. Thereby, we had reduced the additional burden that would result from a surgical procedure. Similarly, Mandibular osteomyelitis with skin manifestations may indicate SAPHO syndrome, requiring careful consideration of potential syndromic features.

CONCLUSION

A delayed diagnosis of such cases can lead to serious complications like tuberculous meningitis which is prevented here by the judicious use of the diagnostic modalities that aided in accurate detection of the occult microbe and reversal of destructive bony lesion.



Figure 1. Clinical Photograph: Swelling on Right Side of Face

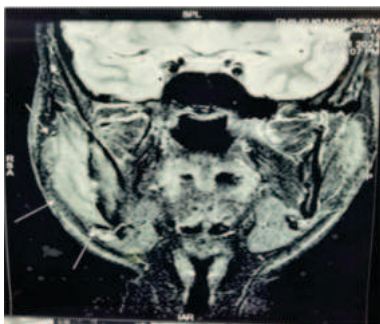


Figure 2. computed Tomography of Mandible

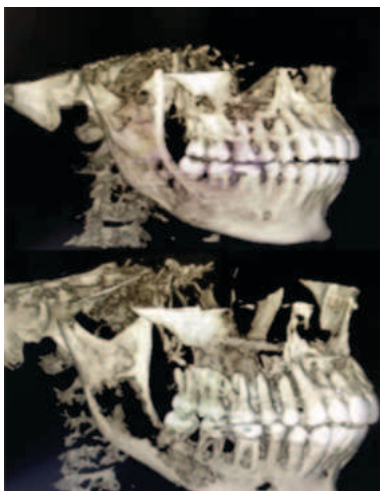


Figure 3. 3D Reconstruction of Mandible

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